

REMARKS

Favorable reconsideration of this Application as presently amended and in light of the following discussion is respectfully requested.

Claims 3-16 remain pending in this application. Claims 3 and 5-8, 10-16 have been amended to address cosmetic matter of form. Specifically, Applicant has added language to the claims to clarify the meaning of ad-hoc network. Although Applicant submits such meaning as always present in the claims by virtue of the definition of "ad-hoc", Applicant amends the claims to advance prosecution. No new matter has been added.

By way of summary, the Official Action of July 25, 2006 presents the following issues: Claims 3, 6, and 11 are rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu (U.S. Patent Publication No. 2002/0196764 A1) in view of Gehrman (U.S. Patent No. 6,912,657 B2); Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and Lockart et al. (U.S. Patent No. 6,229,806, hereinafter Lockart); Claims 5, 7, and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and O'Brien (U.S. Patent Publication No. 2004/0022931 A1); Claims 8 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and further Ocepak et al. (U.S. Patent No. 204/0049586, hereinafter Ocepak) and Ibi et al. (U.S. Patent Publication No. 2003/0118189 A1, hereinafter Ibi); Claim 9 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and further Ocepak, Ibi, and Meier (U.S. Patent No. 6,847,620); Claim 10 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and further Meier, Ibi, and Ocepak; Claims 12 and 14 stand rejected under 35 U.S.C. §103 as being unpatentable over Shimizu in view of Gehrman and further Nuutinen (U.S. Patent Publication No. 2002/0129236 A1); and, Claim 15 stands rejected under 35

U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and further Ocepek, Ibi, and Meier.

REJECTION UNDER 35 U.S.C. § 103

The Official Action has rejected Claims 3, 6, and 11 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman. The Official Action contends that Shimizu discloses all of the Applicant's claim features with the exception of an ad-hoc network. However, the Official Action cites Gehrman as describing this more detailed aspect of the Applicant's claims and states that it would have been obvious to one of ordinary skill in the art at the time the advancement was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

By way of background, as portable electronic devices are increasingly provided with wireless communication capability, communication functionality across devices, platforms and network technologies, is often required. Such communications are supported by ad-hoc networking environments. Unlike traditional LAN environments in which communications, flow between terminals and an access point providing access to the LAN, the ad-hoc network requires data frames be delivered by making a plurality of wireless link hops. In the LAN environment, repeated encryption and decryption at each hop for authentication purposes would introduce unnecessary overhead to each node of the ad-hoc network. In ad-hoc network environments, portable devices are interconnected with one another in an autonomously distributed manner without providing a specific access point.¹

¹ Application at pages 1-3.

In light of at least the above deficiencies in the art, the present advancement is provided. With at least these objects in mind, a brief comparison of the claimed invention, in view of the cited references, is believed to be in order.

Amended Claim 3 recites, *inter alia*, a terminal, including:

an ad-hoc key management list table having at least one key management list in which authentication header keys with respect to other terminals of an ad-hoc network are held in such a manner as to correspond to the terminal identifiers of said other terminals, . . .

wherein the terminal and the other terminal's communicate directly, in an ad-hoc manner exclusive of any network access point.
(emphasis added)

Shimizu describes a wireless LAN system. As shown in Fig. 1, access to Ethernet (5) is provided via access point (AP) (1). Stations (2) wishing to communicate with the Ethernet are channeled through the AP. Periodically, in order to manage access to the Ethernet, the AP provides beacon frames, including data for synchronization to each station (2). Each station, which has received a pertinent beacon, makes an authentication request to the AP at the time of starting communication and after receiving authentication permission for the AP.²

In operation, the Shimizu stations (2) communicate with the AP (1) for clearing a public key management table (40) stored therein. Each terminal (2) includes its own AP data management table (50) for tracking successful authentication across a plurality of APs. As both the APs and stations (2) have their own confidential keys, public keys corresponding thereto, and user certificates with the public keys attached thereto, the stations (2) and the APs are able to participate in an authentication procedure, as outlined in Figs. 6-9.³

² Shimizu at columns 33-36.

³ Shimizu at paras. 55-67.

Gerhrmann describes an ad-hoc communication network such as the bluetooth network or a wireless local area network (WLAN). In operation, a first device may authenticate a second device using a graphical string which is a public key.⁴

Conversely, in an exemplary embodiment of the Applicant's invention, as recited in amended Claim 3, terminals of an ad-hoc network include an ad-hoc key management list table. The table includes at least one key management list in which authentication header keys with respect to other terminals of the ad-hoc network are held in such a manner as to correspond to the terminal identifiers of said other terminals.⁵

In this way, terminals of the ad-hoc network are able to relay data between destinations through a simple authentication procedure of header processing. There is no need to do full authentication processing between terminals including encryption and decryption, or to include access points as done in a typical LAN environment discussed in the Applicant's specification⁶ and as exhibited by the Shimizu reference. Shimizu provides communication between stations (STA) and an access point (AP). As can be appreciated and as noted in the Official Action of July 25, 2006, Shimizu includes communications which are channeled to an access point, Shimizu cannot disclose or suggest an ad-hoc network in which a terminal and other terminal's communicate directly, in an ad-hoc manner exclusive of any network access point. Moreover, Shimizu performs authentication from an access point, which cannot be a "terminal" as claimed.

Gerhrmann is cited for describing an ad-hoc network. To the extent that Gerhrmann is combinable with Shimizu, this combination would lead to conflicting network topologies (traditional LAN, ad-hoc). In this regard, Applicant notes that any proposed modification that would change the basic operating principle of a reference is not an obvious one. See In

⁴ Gerhrmann at Figs. 2-3.

⁵ Specification at Fig. 6.

⁶ Specification at pages 1-3.

re Ratti, 123 USPQ 349, 352 (CCPA 1959). Accordingly, Applicant's ad-hoc communication terminals and method of authenticating terminals by header processing is neither disclosed or suggested by Shimizu alone, or in combination with Gerhrmann.

Accordingly, Applicant respectfully requests the rejection of Claims 3, 6, and 11 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claim 4 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Gehrman and Lockart. The Official Action states that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of discarding a frame when an authentication header is not valid. The Official Action cites Lockart as disclosing this more detailed aspect of the Applicant's invention, and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claim. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements for which they have been asserted with respect to the amended claims. As neither Shimizu nor Lockart, remedy the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented.

Accordingly, Applicant respectfully requests that the rejection of Claim 4 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 5, 7, and 13 under 35 U.S.C. § 103 as being unpatentable over Shimizu and Gehrman in view of O'Brien. The Official Action contends that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of decrypting the payload of a frame by using an extracted unicast encryption key. However, the Official Action cites O'Brien as disclosing this more detailed

aspect of the Applicant's invention, and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements for which they have been asserted with respect to the amended claims. As O'Brien does not remedy the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. Accordingly, Applicant respectfully requests that the rejection of Claims 5, 7, and 13 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 8 and 16 under 35 U.S.C. § 103 as being unpatentable over Shimizu and Gehrman in view of Ocepak, and further in view of Ibi. The Official Action asserts that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites Ocepak and Ibi as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements for which they have been asserted with respect to the amended claims. As none of Shimizu, Ocepak or Ibi, alone or in combination, remedies the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of

obviousness has not been presented. Accordingly, Applicant respectfully requests that the rejection of Claims 8 and 16 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claim 9 under 35 U.S.C. § 103 as being unpatentable over Shimizu and Gehrman in view of Ocepak, and further in view of Ibi, and further in view of Meier. The Official Action asserts that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites Ocepak, Ibi, and Meier as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements of the amended claims for which they have been asserted. As none of Ocepak, Ibi or Meier, alone or in combination, remedies the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. Accordingly, Applicant respectfully requests that the rejection of Claim 9 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claim 10 under 35 U.S.C. § 103 as being unpatentable over Shimizu and Gehrman in view of Meier, and further in view of Ibi, and further in view of Ocepak. The Official Action asserts that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites

Meier, Ibi, and Ocepak as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements of the amended claims for which they have been asserted. As none of Meier, Ibi or Ocepak, alone or in combination, remedies the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. Accordingly, Applicant respectfully requests that the rejection of Claim 10 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 12 and 14 under 35 U.S.C. §103 as being unpatentable over Shimizu and Gehrman in view of Nuutinen. The Official Action asserts that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of generating a keyed hashed value in accordance with the Applicant's claims. However, the Official Action cites Nuutinen as disclosing this more detailed aspect of the Applicant's invention and states that it would have been obvious to one skilled in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements for which they have been asserted with respect to the amended claims. As neither Shimizu nor Nuutinen, remedy the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. As neither Shimizu, alone, or in combination with Nuutinen, disclose or suggest all of the

Applicant's claims, Applicant respectfully requests that the rejection of Claims 12 and 14 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 9, 10, and 15 under 35 U.S.C. § 103 as being unpatentable over Shimizu and Gehrman in view of Ocepek, and further in view of Ibi, and further in view of Meier. The Official Action asserts that Shimizu and Gehrman disclose all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites Ocepek, Ibi, and Meier as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, the combination of Shimizu and Gehrman does not disclose, or suggest, all of the elements of the amended claims for which they have been asserted. As none of Ocepek, Ibi or Meier, alone or in combination, remedies the deficiencies discussed above, Applicant respectfully submits that a *prima facie* case of obviousness has not been presented. Accordingly, Applicant respectfully requests that the rejection of Claims 9, 10, and 15 under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

Consequently, in view of the foregoing remarks, it is respectfully submitted that the present Application, including Claims 1-16, is patentably distinguished over the prior art, in condition for allowance, and such action is respectfully requested at an early date.

Respectfully submitted,

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